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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Charles J. Stouffer et al Art Unit : 3727
Serial No. : 09/434,507 Examiner : Nathan Jeffrey Newhouse
Filed : November 5, 1999
Title : HIGH PRESSURE ISOSTATIC PRESSURE BONDING OF HOLLOW
BERYLLIUM PRESSURE VESSELS USING A BONDING FLANGE

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Pursuant to 37 C.F.R. § 41.50(d), appellant responds to the Remand by the Board of Patent Appeals and Interferences as follows.

The Board has requested that appellant and the Examiner establish whether appellant has filed a communication claiming priority of U.S. Application No. 60/143,916 (the '916 application), and if so, whether that provisional application 1) predates U.S. Patent No. 6,264,095 (the Stouffer patent) and any additional relevant prior art found by the Examiner, and 2) provides adequate written descriptive support for appellant's claims.

Appellant has perfected the claim to priority to the '916 application. The pending application was filed on November 5, 1999, within 12 months of July 14, 1999, which is the filing date of the '916 application. Moreover, the pending application was amended on March 22, 2001 to contain a specific reference to the '916 application. A copy of the amendment filed March 22, 2001 is enclosed for reference.

The '916 application was filed on the same day that the Stouffer patent was filed, namely, on July 14, 1999. Thus, the '916 application does not "predate" the Stouffer patent. Nevertheless, the Stouffer patent is not a proper reference on which a 35 U.S.C. §103(a) or a §102(e) rejection can be made because the Stouffer patent was not "granted on an application for patent by another filed ... before the invention by the applicant for patent." In particular, the Stouffer patent was not filed before the '916 application was filed, which is the latest date of invention by appellant. It appears that the '916 application does not predate any of the other references cited by the Examiner.

The '916 application provides adequate written descriptive support for appellant's claims. In particular, the '916 application provides adequate written descriptive support for "diffusion bonding":

Diffusion bonding is a bonding process by which two work pieces (each formed of the same metal) are joined to one another without using a filler metal and without either of the work pieces melting. Each of the pieces to be bonded has a nominally flat surface. These two flat surfaces are butted up against one another and then a compressive force is applied to the pieces while the temperature is maintained at an elevated temperature that is below the melting point of the metal which the work pieces are made of.

The physical process that occurs at the interface between the two abutted surfaces of the work pieces is a diffusion process. Technically, no melting occurs since there is no wholesale dissociation of the atomic bonds in the bulk of the work pieces. At the surface interface, however, the atomic bonds do shift about substantially so that the two surfaces may integrate together as a homogenous bulk with no gap. When the temperature is lowered and the compression forces relieved, the atomic lattice is stable and essentially homogeneous.

See the '916 application at page 3, lines 18-23. Furthermore, a method of bonding metal shells to form a vessel having an interior void and having a metal bond joint is described in the '916 application:

An interior cavity 126 is formed in vessel blank 120, and a corresponding interior cavity (not shown) is formed in vessel blank 110. Processes for forming these interior cavities are discussed in detail below....

The upper vessel blank 110 is mated to the lower vessel blank 120 so that the upper flange 110' and the lower flange 120' meet to form bonding flange 212. A void 160 is formed between the two blanks 110, 120. The upper tooling member 130 bears down on the top of flange 110' and the lower tooling member 140 bears directly on the bottom of flange 120'. No pressure is brought to bear on the walls of the blanks 110, 120 of the article, only the flanges.

See the '916 application at page 4, line 22 to page 5, line 12 and Figs. 1 and 1A. Moreover, appellant can provide a copy of the '916 application upon request by the Board of Patent Appeals and Interferences.

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For these reasons, and the reasons stated in the Appeal Brief, appellant submits that the final rejection should be reversed.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 13, 2005

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